

DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS

DIRECTOR'S OFFICE

CONSTRUCTION SAFETY AND HEALTH STANDARD ~~CONSTRUCTION SAFETY STANDARDS~~

Filed with the Secretary of State on

These rules take effect immediately upon filing with the Secretary of State unless adopted under section 33, 44, or 45a(6) of 1969 PA 306. Rules adopted under these sections become effective 7 days after filing with the Secretary of State.

(By authority conferred on the director of the department of licensing and regulatory affairs by sections 19 and 21 of 1974 PA 154, MCL 408.1019 and 408.1021, and Executive Reorganization Order Nos. 1996-2, 2003-1, 2008-4, and 2011-4, MCL 445.2001, 445.2011, 445.2025, and 445.2030)

R 408.41405, R 408.41455, R 408.41461, and R 408.41471 of the Michigan Administrative Code are amended as follows:

CONSTRUCTION SAFETY AND HEALTH STANDARD
PART 14. TUNNELS, SHAFTS, CAISSONS, AND COFFERDAMS

R 408.41405 Applicability.

Rule 1405. ~~(4)~~ These rules apply to **auger boring and jacking** ~~pipe augering~~ operations **when occupied by an employee** with the exception of ~~R 408.41461 and~~ R 408.41463.

R 408.41455 Definitions; A to H.

Rule 1455. (1) "Atmospheric pressure" means the pressure of air at sea level, usually 14.7 p.s.i.a. (1 atmosphere) or zero p.s.i.g.

(2) "Auger boring and jacking" means the mechanical removal of soil by use of a rotating auger and cutting head and simultaneously installing pipe or other lining where the section of lining is installed at the opening of the excavation and is jacked or otherwise forced toward the advancing face.

(3) ~~(2)~~ "Auger tunnel" means a tunnel that is excavated by use of a continuous flight auger system, with or without a sleeve or other type of liner.

(4) ~~(3)~~ "Bulkhead" means an airtight structure separating the working chamber from free air or from another chamber under a lesser pressure than the working pressure.

(5) ~~(4)~~ "Caisson" means either a generally vertical foundation unit below grade or a chamber placed in the ground or water for excavating earth and in which it is possible for a person to work under air pressure greater than atmospheric pressure to excavate material below water level.

(6) ~~(5)~~ "Cofferdam" means a temporary structure used to control the flow of water and other material during construction operations.

(7) ~~(6)~~ "Competent person" means a person who is experienced and capable of identifying existing and predictable hazards in the surroundings or under working conditions **that which** are hazardous or dangerous to an employee, and who has the authority and knowledge to take prompt corrective measures to eliminate hazards.

(8) ~~(7)~~ "Compressed air" means an environment that has a pressure greater than atmospheric pressure.

(9) ~~(8)~~ "Decanting" means a method used for decompressing under emergency circumstances. In this procedure, the employees are brought to atmospheric pressure with a very high gas tension in the tissues and then immediately recompressed in a second and separate chamber or lock.

(10) ~~(9)~~ "Emergency lock" means a lock designed to hold and permit the quick passage of an entire shift of employees.

(11) ~~(10)~~ "Escape-only respirator" means a respirator intended to be used only for emergency exit.

(12) ~~(11)~~ "High air" means air pressure used to supply power to pneumatic tools and devices.

R 408.41461 Advance notice of tunnel excavation.

Rule 1461. (1) Before the start of a **pressurized tunnel being constructed, modified or repaired**, ~~tunnel, as defined in R 408.41456, which~~ **that** is 24 inches or more in diameter, height or width, and **that which** will be occupied by an employee, a report prepared by the employer performing the tunnel excavation shall be sent to the Michigan Department of Licensing and Regulatory Affairs, Construction Safety and Health Division, **530 West Allegan Street**, ~~7150 Harris Drive~~, P.O. Box 30645, Lansing, Michigan 48909-8145, in addition to the following civil authorities in the area: hospital, police department, fire department, and sheriff department. The report shall contain all of the following information:

(a) Name of contractor or contractors.

(b) Starting date.

(c) Length of tunnel.

(d) Diameter of cut.

(e) Finished diameter.

- (f) Number of shafts.
- (g) Depth of shafts.
- (h) Location of shafts.
- (i) Method of tunneling.
- (j) Maximum working pressure in tunnel or shaft.
- (k) Type of primary liner.
- (l) Number of shifts.
- (m) Projected completion date.
- (n) Projected maximum work force within tunnel.

(2) ~~The~~ **An** employer shall notify parties notified pursuant to subrule (1) of this rule when the work has been completed.

(3) If, after the start of any tunnel project, a tunnel or shaft that the employer has shown to be constructed, modified, or repaired under atmospheric conditions requires the tunnel to be pressurized, then the employer shall notify the Construction Safety and Health Division at the Michigan Department of Licensing and Regulatory Affairs, **530 West Allegan Street, 7150 Harris Drive**, P.O. Box 30645, Lansing, Michigan 48909-8145, 24 hours before allowing employees to enter the tunnel.

(4) If the work operations of any occupied tunnel projects are discontinued for 30 consecutive days or longer, then the employer shall notify the **Construction Safety and Health Division at the Michigan Department of Licensing and Regulatory Affairs**, ~~construction safety and health division at the Michigan department of licensing and regulatory affairs~~, 24 hours before resuming work operations on the tunnel project.

R 408.41471 Ground support; inspections; repairs.

Rule 1471. (1) A qualified employee shall inspect the roof, face, and walls of portals, work areas, and haulage ways, or ~~travel-ways-travelways~~ at the start of each shift and frequently thereafter as needed. If loose soil or rock or fractured material is encountered, then it shall be scaled or protected and supported. The employee conducting the inspections shall be protected from loose ground by location, ground support, or equivalent means. Suitable protection shall be provided for employees exposed to the hazard of loose ground while installing ground support systems. Support sets shall be installed so that the bottoms have sufficient anchorage to prevent ground pressures from dislodging the support base of the sets. Lateral bracing (collar bracing, tie rods, or spreaders) shall be provided between immediately adjacent sets to ensure added stability. Damaged or dislodged ground supports that create a hazardous condition shall be promptly repaired or replaced. When replacing supports, the new supports shall be installed before the damaged supports are removed. A shield or other type of support shall be used to maintain a safe travel way for employees working in dead-end areas ahead of any support replacement operation.

(2) A scaling bar shall be in good condition. A blunted or severely worn bar shall not be used.

(3) A torque meter and a torque wrench shall be available where rock bolts are used for ground support. Frequent tests shall be made to determine if the bolts are tight. The test frequency shall be determined by rock conditions and distance from vibration sources.

(4) A damaged or dislodged tunnel support shall be repaired or replaced when structural integrity is impaired. A new support shall be installed if possible before removing damaged supports.

(5) Tunnel supports shall be designed and installed to prevent pressure from pushing them inward into the excavation.

(6) Roof supports shall be used where ground conditions are such that there could be a ground failure ahead of tunnel sets.

(7) A tunnel that is to be occupied by employees shall be provided with a steel casing, concrete pipe, timber, or other material of required strength to support the surrounding earth.

(8) If an employee is required to enter a tunnel **or an auger boring and jacking operation** less than 3 feet in diameter, then a lifeline for instant rescue shall be securely fastened to his or her ankles. Another employee shall be stationed at the tunnel entrance to operate the lifeline. In addition, ventilation shall be provided with an air line.